

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

Remarks

In response to the Office Action mailed November 30, 2007, Applicants respectfully request reconsideration. To further the prosecution of the application, claims 3, 19, 44 and 58 have been amended, and claims 35-39, 72-74 and 98-100 have been cancelled. Claims 1-34, 40-71, 78-86, and 88-97 are pending in the application with claims 1, 17, 32, 40, 42, 56, 69, 78, 88-90, and 95 in independent form. The application as presented is believed to be in allowable condition.

Claims 3, 19, 44 and 58 have been amended to clarify the claimed subject matter and the amendment is not related to patentability of these claims.

In the Office Action, claims 1-6, 14-19, 21, 29-32, 35-39, 42-46, 54-59, 67-69, 72-74, 78-80, 85, 86, 88, 95, 98, 99 and 100 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No.5,982,652 (Simonelli). Claims 35-39, 72-74 and 98-100 have been cancelled herein without prejudice to pursue this claims in one or more continuation applications. For the reasons provided below, Applicants respectfully traverse this rejection for the remaining claims.

Claim 1 is directed to a power supply system. The power supply system includes a frame, a power input to receive input power from a power source, a power output to provide output power to a load, at least one battery module mounted in the frame and having a battery output that provides battery power, at least one power module mounted in the frame and coupled to the power input to receive the input power, coupled to the battery output to receive the battery power, and coupled to the power output to provide the output power from at least one of the battery power and the input power, a first controller coupled to the at least one power module; and a second controller, substantially similar to the first controller, coupled to the first controller, and coupled to the at least one power module, wherein each of the first controller and the second controller is configured to determine operational parameters of the power supply system and store a first set of parameters determined by the first controller and a second set of parameters determined by the second controller.

In contrast with claim 1, Simonelli does not disclose a power supply system having first and second controllers, wherein each of the first controller and the second controller is

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

configured to determine operational parameters of the power supply system and *store a first set of parameters determined by the first controller and a second set of parameters determined by the second controller.*

The Office Action does not indicate that Simonelli directly meets this limitation, but rather states “operation parameters are inherent to the controllers in order to provide the controlling functions for the uninterruptible power supply, example the controller needs to determine a failure from the monitored data in order to know when to transfer control to the redundant controller.” Even if operation parameters are inherent to the controllers (which Applicants do not concede), claim 1 recites more than this. In claim 1, each of the controllers is configured to determine operational parameters of the power supply system and *store a first set of parameters determined by the first controller and a second set of parameters determined by the second controller.* This limitation is not met by Simonelli, either directly or inherently, and the Office Action does not fully address this limitation. Based on the foregoing, claim 1 is patentably distinguishable over Simonelli, and the rejection of claim 1 under 35 U.S.C. 102(b) should be withdrawn.

Claims 2-6 and 14-16 depend from claim 1 and are patentable for at least the same reasons.

Independent claim 17 is directed to a power supply system that includes a power input to receive input power from a power source, a power output to provide output power to a load, at least one battery module having a battery output that provides battery power, at least one power module coupled to the power input to receive the input power, coupled to the battery output to receive the battery power, and coupled to the power output to provide the output power, a first controller coupled to the at least one power module, and a second controller, coupled to the first controller, and coupled to the at least one power module, and a communications bus coupled to the first controller, the second controller and the at least one power module to provide duplex communication between the first controller, the second controller and the at least one power module, wherein the first controller is configured to function as master of the communications bus and control communications on the bus, and the second controller is configured to function as master of the communications bus upon failure of the first controller.

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

In the Office Action, in the explanation of the rejection of claims, reference is made to paragraph numbers in Simonelli. It appears that the referenced paragraph numbers may refer to a document other than U.S. Patent No. 5,982,652 or U.S. Published Application 20010011845, which is related to Patent No. 5982,652. If any of the rejections are to be maintained, clarification is respectfully requested.

In contrast with claim 17, Simonelli does not disclose a power supply having first and second controllers wherein the first controller is configured to function as master of the communications bus and control communications on the bus, and ***the second controller is configured to function as master of the communications bus upon failure of the first controller.*** In Simonelli, one controller (“the MIM”) functions as a bus master. See, col. 9, lines 2-9 and col. 11, lines 54-60. Based on the foregoing, claim 17 is patentably distinguishable over Simonelli, and the rejection of claim 17 under 35 U.S.C. 102(b) should be withdrawn.

Claims 18, 19, 21 and 29-31 depend from claim 17 and are patentable for at least the same reasons.

Independent claim 32 is directed to a power supply system that includes an input to receive input power having a first input phase line, a second input phase line and a neutral input line, an output to provide output power, the output having a first output phase line, a second output phase line and a neutral output line, a battery that provides battery power, and a controller coupled to the input, to the output and to the battery and configured to control the power supply system to provide the output power from at least one of the input power and the battery power, wherein the controller is configured to detect an input phase difference between the first input phase line and the second input phase line, and to provide output power with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase difference.

The power supply system of claim 32 has first and second input phase lines and a neutral, and first and second output phase lines and a neutral. The system further includes a controller that is configured to detect an input phase difference between the first input phase line and the second input phase line, and to provide output power with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

difference. Simonelli fails to disclose a controller configured to provide output power as recited in claim 32. Based on the foregoing, claim 22 is patentably distinguishable over Simonelli, and the rejection of claim 22 under 35 U.S.C. 102(b) should be withdrawn.

Independent claim 42 is directed to a power supply system that includes a frame a power input to receive input power from a power source, a power output to provide output power to a load, at least one battery module mounted in the frame and having a battery output that provides battery power, at least one power module mounted in the frame and coupled to the power input to receive the input power, coupled to the battery output to receive the battery power, and coupled to the power output to provide the output power from at least one of the battery power and the input power, a first controller coupled to the at least one power module, and a second controller, substantially similar to the first controller, coupled to the first controller, and coupled to the at least one power module, wherein each of the first controller and the second controller includes means for measuring operational parameters of the power supply system and means for storing operational parameters measured by the first controller and measured by the second controller.

Claim 42 is patentable over Simonelli for reasons similar to claim 1 discussed above. More specifically, in contrast with claim 42, Simonelli does not disclose a power supply system having first and second controllers that include means for measuring operational parameters of the power supply system and means for storing operational parameters measured by the first controller and measured by the second controller. Based on the foregoing, claim 42 is patentably distinguishable over Simonelli, and the rejection of claim 42 under 35 U.S.C. 102(b) should be withdrawn.

Claims 43-46, 54 and 55 depend from claim 42 and are patentable for at least the same reasons.

Independent claim 56 is directed to a power supply system comprising a power input to receive input power from a power source, a power output to provide output power to a load, at least one battery module having a battery output that provides battery power, at least one power module coupled to the power input to receive the input power, coupled to the battery output to receive the battery power, and coupled to the power output to provide the output power, a first

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

controller coupled to the at least one power module, a second controller, coupled to the first controller, and coupled to the at least one power module, and a communications bus coupled to the first controller, the second controller and the at least one power module to provide duplex communication between the first controller, the second controller and the at least one power module and means for establishing the first controller as master of the communications bus and for establishing the second controller as master of the communications bus upon failure of the first controller.

Claim 56 is patentable over Simonelli for reasons similar to claim 17 discussed above. More specifically, in contrast with claim 56, Simonelli does not disclose a power supply system having first and second controllers and *means for establishing the first controller as master of the communications bus and for establishing the second controller as master of the communications bus upon failure of the first controller*. Based on the foregoing, claim 56 is patentably distinguishable over Simonelli, and the rejection of claim 56 under 35 U.S.C. 102(b) should be withdrawn.

Claims 57-59, 67 and 68 depend from claim 56 and are patentable for at least the same reasons.

Independent claim 69 is directed to a power supply system that includes an input to receive input power having a first input phase line, a second input phase line and a neutral input line, an output to provide output power, the output having a first output phase line, a second output phase line and a neutral output line, a battery that provides battery power, a controller coupled to the input, to the output and to the battery and configured to control the power supply system to provide the output power from at least one of the input power and the battery power, and means for detecting an input phase difference between the first input phase line and the second input phase line, and providing output power with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase difference.

Claim 69 is patentable over Simonelli for reasons similar to claim 32 discussed above. More specifically, in contrast with claim 69, Simonelli does not disclose a power supply system having means for detecting an input phase difference between a first input phase line and a

second input phase line, and providing output power with an output phase difference between a first output phase line and a second output phase line substantially equal to the input phase difference. Based on the foregoing, claim 69 is patentably distinguishable over Simonelli, and the rejection of claim 69 under 35 U.S.C. 102(b) should be withdrawn.

Independent claim 78 is directed to a method of providing redundant control of an uninterruptible power supply having a first controller and a second controller. The method includes determining a first set of values corresponding to operational parameters of the uninterruptible power supply using the first controller, determining a second set of values corresponding to the operational parameters of the uninterruptible power supply using the second controller, storing the first set of values and the second set of values in the first controller, storing the first set of values and the second set of values in the second controller, controlling output power of the uninterruptible power supply using the first controller; and upon failure of the first controller, controlling the output power of the uninterruptible power supply using the second controller.

Claim 78 is patentable over Simonelli for reasons similar to claim 1 discussed above. More specifically, in contrast with claim 78, Simonelli does not disclose a method for providing redundant control of an uninterruptible power supply that includes acts of *storing a first set of values and a second set of values in a first controller, and storing the first set of values and the second set of values in a second controller*. Based on the foregoing, claim 78 is patentably distinguishable over Simonelli, and the rejection of claim 78 under 35 U.S.C. 102(b) should be withdrawn.

Claims 79, 80, 85 and 86 depend from claim 78 and are patentable for at least the same reasons.

Independent claim 88 is directed to a method of controlling an uninterruptible power supply system having a first controller, a second controller, at least one power module, and a communications bus coupled between the first controller, the second controller and the at least one power module. The method includes controlling output power of the uninterruptible power supply and communications over the communications bus using the first controller, and upon failure of the first controller, controlling the output power and communications over the

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

communications bus using the second controller. Further, the uninterruptible power supply has a power input that is configured to receive input power having a first input phase line, a second input phase line and a neutral input line, and the method further includes detecting an input phase difference between the first input phase line and the second input phase line, and providing output power having a first output phase line, a second output phase line and a neutral output line, with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase difference.

Claim 88 is patentable over Simonelli for reasons similar to claim 17 discussed above. More specifically, in contrast with claim 88, Simonelli does not disclose a method that includes controlling output power of the uninterruptible power supply and communications over the communications bus using a first controller, and upon failure of the first controller, controlling the output power and communications over the communications bus using a second controller. Based on the foregoing, claim 88 is patentably distinguishable over Simonelli, and the rejection of claim 88 under 35 U.S.C. 102(b) should be withdrawn.

Independent claim 95 is directed to a method of providing uninterruptible output power in a power supply having an input to receive input power having a first input phase line, a second input phase line and a neutral input line, and an output to provide output power, the output having a first output phase line, a second output phase line and a neutral output line. The method includes detecting an input phase difference between the first input phase line and the second input phase line, and providing output power with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase difference.

Claim 95 is patentable over Simonelli for reasons similar to claim 32 discussed above. More specifically, in contrast with claim 95, Simonelli does not disclose a method that includes providing output power *with an output phase difference between a first output phase line and a second output phase line substantially equal to an input phase difference*. Based on the foregoing, claim 95 is patentably distinguishable over Simonelli, and the rejection of claim 95 under 35 U.S.C. 102(b) should be withdrawn.

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

Claims 7-13, 22-28, 33, 34, 40, 41, 47-53, 60-66, 70, 71, 81-84, 89-94, 96 and 97 have been rejected under 35 U.S.C. 103 as being unpatentable over Simonelli.

Each of dependent claims 7-13, 22-28, 33, 34, 47-53, 60-66, 70, 71, 81-84, 96 and 97 depend from one of the independent claims discussed above and is patentable for at least the same reasons.

Independent claim 40 is directed to a power supply system comprising a frame, a power input to receive input power from a power source, a power output to provide output power to a load, at least one battery module mounted in the frame and having a battery output that provides battery power, at least one power module mounted in the frame and coupled to the power input to receive the input power, coupled to the battery output to receive the battery power, and coupled to the power output to provide the output power from at least one of the battery power and the input power, a first controller module, mounted in the frame, coupled to the at least one power module and the at least one battery module, and a first cold start button operatively coupled to the at least one battery module, wherein the power supply system is configured to be powered on from battery power with no input power present from a powered down mode in which there is no current being drawn from the battery when the first cold start button is activated by a user.

In contrast with claim 40, Simonelli does not disclose or suggest a power supply system having *a first cold start button* operatively coupled to the at least one battery module, wherein the power supply system is configured to be powered on from battery power with no input power present from a powered down mode in which there is no current being drawn from the battery when the first cold start button is activated by a user. In addressing this claim, the Office Action states “it would have been obvious to one having ordinary skill in the art at the time of this invention to have provided a control to select the battery power supply as the desired source if the input source was noisy or not dependable to reduce power supply noise.” Even if it were obvious to provide a control as indicated (which Applicants do not concede), this does not meet the limitation recited in the claim. The claim recites a power supply system that has a first cold start button operatively coupled to the at least one battery module, wherein the power supply system is configured to be powered on from battery power with no input power present from a

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

powered down mode in which there is no current being drawn from the battery when the first cold start button is activated by a user. Claim 40 is patentably distinguishable over Simonelli, as Simonelli does not disclose or suggest a power supply system having a cold start button as claimed. Based on the foregoing, claim 40 is patentably distinguishable over Simonelli, and the rejection of claim 40 under 35 U.S.C. 103 should be withdrawn.

Claim 41 depends from claim 40 and is patentable for at least the same reasons.

Independent claim 90 is directed to a method of providing uninterruptible output power in a power supply having an input to receive input power having a first input phase line, a second input phase line and a neutral input line, and an output to provide output power, the output having a first output phase line, a second output phase line and a neutral output line. The method includes detecting an input phase difference between the first input phase line and the second input phase line, and providing output power with an output phase difference between the first output phase line and the second output phase line substantially equal to the input phase difference.

Claim 90 is patentable over Simonelli for reasons similar to claim 32 discussed above. More specifically, in contrast with claim 90, Simonelli does not disclose or suggest a method that includes providing output power *with an output phase difference between a first output phase line and a second output phase line substantially equal to an input phase difference*. Based on the foregoing, claim 90 is patentably distinguishable over Simonelli, and the rejection of claim 90 under 35 U.S.C. 103 should be withdrawn.

Claims 91-94 depend from claim 90 and are patentable for at least the same reasons.

Applicant(s): Francis J. Masciarelli et al.
U.S.S.N.: 10/764,344

CONCLUSION

Based on the foregoing, the application is believed to be in allowable condition and a notice to that effect is respectfully requested. If the Examiner has any questions regarding the application, the Examiner is invited to contact the Applicant's Attorney at the number provided below.

Respectfully submitted,

By: /Thomas M. Sullivan/
Thomas M. Sullivan, Esq. (Reg. No. 39,392)
LOWRIE, LANDO & ANASTASI, LLP
Riverfront Office Park
One Main Street
Cambridge, MA 02142
Tel.: (617) 395-7024
Fax: (617) 395-7070
Attorney for Applicants

Dated: March 31, 2008
Attorney Docket No.: A2000-700119

886418.1